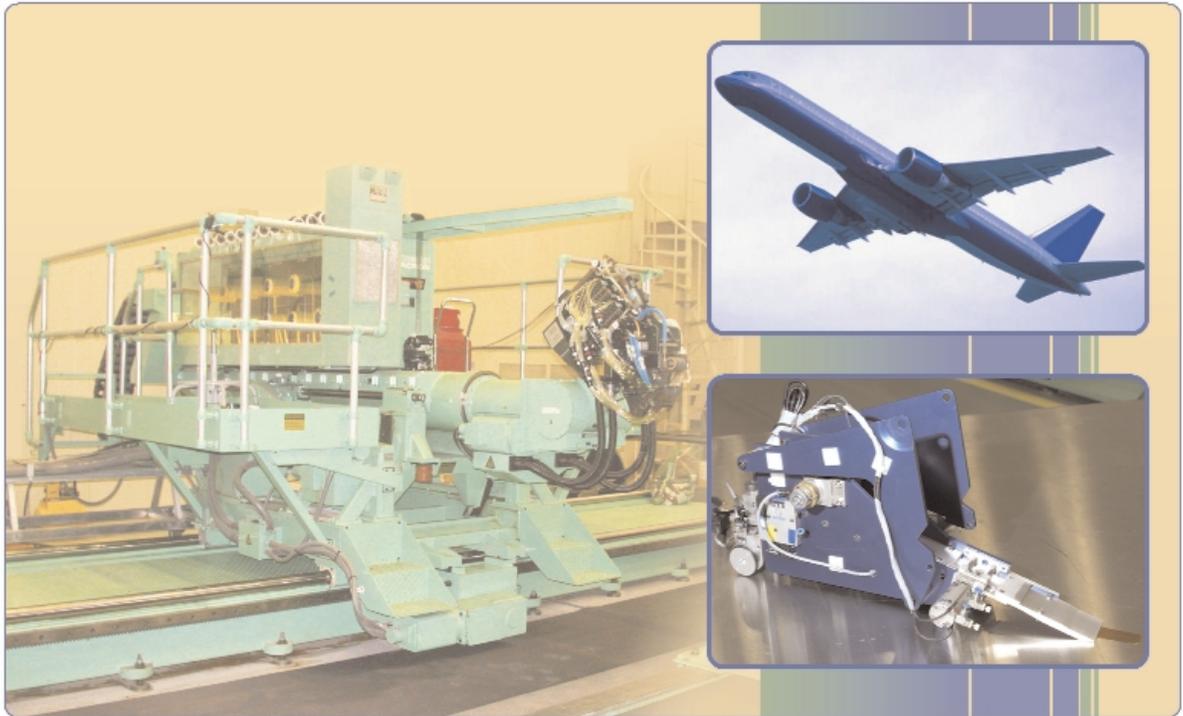


# Film Processing Module



NASA's Marshall Space Flight Center (MSFC) has developed a technology that combines a film/adhesive lay-down module and fiber placement technology to enable the processing of both a composite structure and a film or film adhesive on the same placement machine without having to interrupt either process. This patent-pending technology can also be modified such that both film materials and composite pre-preg tow/tape can be processed simultaneously on one machine, resulting in a further decrease in processing costs and part fabrication time.

## Benefits

- Reduces manufacturing cost and time
- Automatically incorporates thin films, metallic foils, or adhesive films into composite structures
- Allows for hybridized composite materials to be produced on a fiber placement machine as a separate operation or simultaneously with the fiber-placement process
- Can be designed to utilize the head compaction roller of the fiber-placement machine or with its own compaction device
- Can be provided as an add-on to existing automated fiber-placement machines or designed into fiber-placement machines at the factory
- Film module may be controlled by existing computer processing files on the host fiber placement machine

## Commercial Applications

- Deposit barrier films (metallic or polymeric)
- Automatic application of adhesive film for honeycomb sandwich structure
- Make large-diameter tanks with hybridized composition
- Process complexly-curved part geometries having hybridized constitution
- Automated fabrication of composites having embedded lightning-strike protection

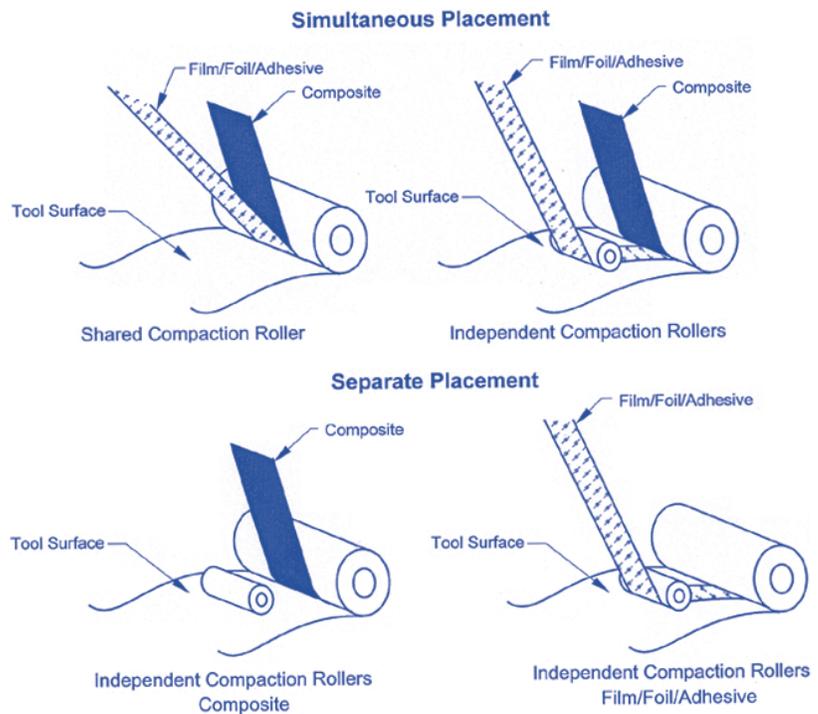




## The Technology

Automated fiber placement is a technology that allows for the automated lay-up of pre-impregnated composite tow and tape materials. Current placement technology does not permit the incorporation of barrier or structural films or foils, liners, or core film adhesives into the composite materials by automated means. The benefits of hybridized composites have been well documented; however, automated methods to produce such laminates have not been developed. The ability to perform both composite tow/tape and film lay-up on the same machine would reduce cost, increase productivity, and permit new designs and concepts to be considered.

NASA's Marshall Space Flight Center has developed a fully automated feed and delivery system for the supply of film, foil, or film adhesive materials to the automated fiber-placement machine. The Film Processing Module can be provided as an add-on to existing automated fiber-placement machinery with a minimum of machine modification or can be designed as integral equipment to new machines.



## For More Information

If you would like more information about this technology or about NASA's technology transfer program, please contact:

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## Partnership Opportunities

This patent-pending technology is part of NASA's technology transfer program, which seeks to stimulate commercial use of NASA-developed technology. Companies are invited to explore licensing and codevelopment opportunities for the technology. NASA is flexible in its agreements, and opportunities exist for exclusive, nonexclusive, or exclusive field-of-use patent licensing.



More information about working with MSFC's Technology Transfer Department is available online.

[www.nasasolutions.com](http://www.nasasolutions.com)

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